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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,040	06/22/2005	Patrick Jelf Crowley	70190	8709

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EXAMINER	
JAISLE, CECILIA M	
ART UNIT	**PAPER NUMBER**
1624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,040	CROWLEY ET AL.	
	Examiner	Art Unit	
	Cecilia M. Jaisle	1624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06-22-05 &08-01-05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *10-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06-22-05 & 08-01-05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1 – 9, drawn to pyrimidopyrimidines, classified in class 544, subclass 279, and to plant fungicidal compositions, classified in class 504, subclass 117.

II. Claim 10, drawn to a process of preparing pyrimidopyrimidines, classified in class 544, subclass 279.

III. Claim 11, drawn to intermediates to pyrimidopyrimidines, classified in class 544, subclasses 279, 329, 334 and 335.

IV. Claim 13, drawn to methods for combating or controlling phytopathogenic fungi, classified in class 504, subclass 117.

The inventions are independent or distinct for the following reasons. Inventions I - IV, respectively, are not obvious variants of each other, i.e., a reference that could be used to reject one invention could not be used to reject another invention; and the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect. See MPEP § 806.05(j).

In the instant case, the Group I compounds/compositions are distinct from Groups II and IV, because the Group I compounds would be expected to be herbicide antagonists (e.g., U.S. Pat. No. 5,597,776 and WO 01/17972), or have pharmaceutical applications (e.g., J. Med. Chem., 1983, Vol. 26, No. 3, p. 403). The Group I

compounds can be made by other processes than those of Group II, e.g., cyclization, shown in U.S. Pat. No. 6,960,662. The Group III compounds are distinct from the Group I compounds, because the Group III compounds of would treat disorders associated with enhanced activity of kinase p38 (e.g., U.S. Pat. Publ. 2006/0199821).

In the instant case, the related inventions of Groups I – IV, respectively, do not overlap in scope because the inventions of Groups I – IV have separate status in the art, as evidenced by their separate classifications. Even though the compounds of Group I and the preparations of Group II are classified together in the U.S. Patent Classification System, they each would be separately searched in the literature. A similar situation exists for the methods of Group IV. The intermediates of Group III would be separately searched from any of the other groups in both the patent and non-patent literature. Therefore, it would impose an undue burden on the examiner to search and examine these distinct inventions together.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification and require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and composition claims of Group I, process claims of Group II and fungicidal method claims of Group V. Where Applicants elect claims directed to the product/composition, and the product/composition claims are subsequently found allowable, withdrawn process claims and fungicidal method claims that depend from or otherwise require all the limitations of the allowable product/composition claim will be considered for rejoinder. All claims directed to nonelected rejoinable inventions must require all the limitations of an allowable product/composition claim for those inventions to be rejoined.

In the event of rejoinder, the requirement for restriction between the product/composition claims and the rejoined claims will be withdrawn, and the rejoined claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product/composition are found allowable, an otherwise proper restriction requirement between product/composition claims and withdrawn claims may be maintained. Withdrawn claims that are not commensurate in scope with an allowable product/composition claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the withdrawn claims should be amended during prosecution to require the limitations of the product/composition claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting

rejections of 35 U.S.C. 121 does not apply where the examiner withdraws the restriction requirement before the patent issues. See MPEP § 804.01.

During a telephone conversation on August 30, 2006, Thomas Hamilton made a provisional election with traverse to prosecute the invention of Group I, claims 1-9. Applicants must affirm this election in replying to this Office action. The examiner has withdrawn Claims 10-13 from further consideration, 37 CFR 1.142(b), as being drawn to a non-elected invention, subject to rejoinder as noted above.

This election was made with traverse. To preserve a right to petition, the reply to this Office Action must distinctly and specifically point out supposed errors in the restriction requirement, or the election shall be treated as an election without traverse.

Should Applicants traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Claim Rejection – 35 U.S.C. 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1, 5, 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. The phrase "especially methyl, " renders the claim indefinite because it is unclear whether the limitation(s) following and/or preceding the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejection – 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by Bennett, et al., J. Med. Chem. 1981, *24*, 382-389 (hereinafter, Bennett), describing Table III 6-arylpyrido[2,3-d]pyrimidin-7-amines, see Nos. 9-48 and 50-56.

Claim Rejection – 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blankley, et al., U. S. Pat. No. 5,620,981, patented Apr. 15, 1997 (hereinafter, Blankley I). Blankley I shows (col. 12, lines 39-67; col. 15, last formula on the left, *inter alia*) 2-(2-ethoxy)-ethoxy-7-imino-pyrido[2,3-d]pyrimidine. This compound falls under the generic formula I of Blankley I (col. 2, line 53-col. 3, line 28, *inter alia*). Note that Blankley I acknowledges (col. 4, lines 34-43, *inter alia*) that the 7-imino- and 7-amino-derivatives are equivalent tautomers of each other. Note also that the present specification (page 6, lines 28-31) teaches "any of the foregoing alkyl ... groups ... being optionally substituted with ... C_{1-6} alkoxy." It would have been within the skill of the ordinary chemist at the time this invention was made to make the presently claimed compounds according to the teachings of Blankley I, with which the presently claimed

compounds are homologous, motivated by the expectation that this compound would be useful as an inhibitor of protein tyrosine kinases taught by Blankley I.

Compounds of the present claims that are methyl homologs of Blankley I would have been obvious to one having ordinary skill in the art at the time of the present invention. One having ordinary skill in the art would have been motivated to prepare the instantly claimed compounds that are methyl homologs of the Blankley I compounds, because such structurally related compounds are expected to possess similar properties. It has been held that compounds that are structurally homologous to prior art compounds are *prima facie* obvious, absent a showing of unexpected results.

> An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties.

In re Payne, 203 USPQ 245, 254 (CCPA 1979). See also *In re Papesch*, 137 USPQ 43 (CCPA 1963) and *In re Dillon*, 16 USPQ2d 1897 (Fed.Cir. 1991) (discussed in MPEP § 2144) for an extensive case law review pertaining to obviousness based on close structural chemical compound similarity. See also MPEP § 2144.08, ¶ II.A.4(c). Compounds that are homologs (compounds differing by the successive addition of the same chemical group, e.g., by CH3- groups), as here, are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 195 USPQ 426 (CCPA 1977). Blankley I establishes a *prima facie* case of obviousness for the presently claimed compounds.

Claims 1-9 are rejected under 35 U.S.C. 103(a) over Bratz, et al., U. S. Pat. No. 5,597,776, patented Jan. 28, 1997 (hereinafter, Bratz). Bratz shows (Table A, col. 17,

first 3 formulae on the left, and compounds with the R^3, R^4 and R^5 substituents in cols. 25-27, in which R^5 is amino, *inter alia*) various 7-amino-pyrido[2,3-d]pyrimidines as herbicides. The presently claimed compounds fall under the generic formula I of Bratz (col. 1, line 6-col. 2, line 39, *inter alia*). It would have been within the skill of the ordinary chemist at the time this invention was made to make these 7-amino-pyrido[2,3-d]pyrimidines compounds of Table A according to the teachings of Bratz, motivated by the expectation that these compounds would be useful as herbicides. The discussion *supra* of the obviousness of alkyl homologs is repeated here as equally pertinent. Bratz establishes a *prima facie* case of obviousness for the presently claimed compounds.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blankley, et al., U. S. Pat. No. 4,271,164, patented June 2, 1981 (hereinafter, Blankley II). Blankley II shows (Table, cols. 7-8, Examples 1,2, 4-7 and 18-32, *inter alia*) various 7-amino-pyrido[2,3-d]pyrimidines as antihypertensives. The presently claimed compounds fall under the structural formula of Blankley II (col. 1, lines 40-col. 2, line 4, *inter alia*). It would have been within the skill of the ordinary chemist at the time this invention was made to make the presently claimed 7-amino-pyrido[2,3-d]pyrimidines compounds according to the teachings of Blankley II, motivated by the expectation that these compounds would be useful as antihypertensives. The discussion *supra* of the obviousness of alkyl homologs is repeated here as equally pertinent. Blankley II establishes a *prima facie* case of obviousness for the presently claimed compounds.

Claims 1-3, 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett, describing Table III 6-arylpyrido[2,3-d]pyrimidin-7-amines, see Nos. 9-48 and 50-56. It would have been within the skill of the ordinary chemist at the time this invention was made to make the presently claimed 7-amino-pyrido[2,3-d]pyrimidines compounds according to the teachings of Bennett, because the present claims encompass alkyl homologs of Bennett. The skill of the ordinary chemist would have been motivated to prepare alkyl homologs of Bennett by the expectation that these compounds would be useful as antihypertensives. The discussion *supra* of the obviousness of alkyl homologs is repeated here as equally pertinent. In addition, Bennett suggests the equivalency of chloro, iodo, bromo and flouro substituted phenyl substituents in the 6-position of the pyrido[2,3-d]pyrimidines; see compounds 10-12, 16-18, 22, 24-28, 33-41, 48, 50, 51, 53, 54 and 56, *inter alia*. Therefore, Bennett suggests the specific halo-phenyl substituted pyrido[2,3-d]pyrimidines of claim 7. Bennett establishes a *prima facie* case of obviousness for the presently claimed compounds.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cecilia M. Jaisle, J.D. whose telephone number is 571-272-9931. The examiner can normally be reached on Monday through Friday; 8:30 am through 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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